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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,888	09/29/2003	Fred Gehrung Gustavson	YOR920030169US1 YOR.463	7987
21254	7590	11/02/2006	EXAMINER NGO, CHUONG D	
MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			ART UNIT 2193	PAPER NUMBER

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/671,888

Applicant(s)

GUSTAVSON ET AL.

Examiner

Chuong D. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/11/2006.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The disclosure is objected to because of the following informalities: status of related applications cited in the cross-reference has not been updated. Appropriate correction is required.

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-9 and 20 are directed to a computer method for performing merely numerical computation and manipulation. Claims 10-12 are merely directed to a computer implementing the method. Claims 13-19 are directed to a computer readable medium having instruction for implementing the method. In order for a computer related invention that is directed to such a computer implemented method of computation, a computer implementing a computation, or a computer readable medium having instructions for implementing a computation, to be statutory, the claimed invention must accomplish a practical application. That is the claimed invention must transform an article or physical object to a different state or thing, or produce a useful, concrete and tangible result. State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Also see "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility", OG Notices: 22 November 2005. It is clear from claims 1-20 that the claims merely

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involves calculations and manipulations of numerical data. The claimed invention does not transform an article or physical object to a different state or thing. The claims also fail to assert a practical application in the claims for the invention to produce a useful, concrete and tangible result. Therefore, the claimed invention is directed to non-statutory subject matter as the invention is directed to numerical computation without accomplishing a practical application.

Claims 13-16 are also rejected under 35 U.S.C. 101 as being directed to mere data structure which is non-statutory subject matter if not being stored in a computer readable medium.

Claims 17-19 are also rejected under 35 U.S.C. 101 as being directed to signal carrier which is non-statutory subject matter.

4. Claims 2, and 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 2, it is indefinite as to what it means by the recitation "a format of data ... comprises variations of a non-optimal floating point loading instruction", lines 4-5.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,3,4,10,11,13-15 and 17-20 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lao et al. (7,031,994).

Lao et al discloses in figure 6 an apparatus for perform matrix transposition operation including a reader (600,612), a separator (606) for separate data into blocks, a calculator (600), and memory loader (600,612,614) as claimed. The apparatus performs separating a matrix into blocks, each said block having a size 2-by-2; and at least one of: storing elements in at least one of the blocks in at least one of a cache and a memory in a format in which elements of said block occupy a location different from an original location in said block; and storing said blocks of size p-by-q in said at least one of cache and memory in a format in which at least one said block occupies a position different comprising one of a column major position and a row major position relative to its original position in the matrix (see col. 16, lines 27-59 of which lines 49-53, disclose a checkerboard loading technique).

8. Claims 2,5-9,12,16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lao et al. (7,031,994).

As per claims 2 and 7, it is noted that Lao et al does not specifically disclose the apparatus is an floating point unit. However, since Lao et al does not restrict the matrix

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operation in to either an integer unit or a floating point unit, It would have been an obvious application to apply the teaching of Lao et al. in a floating point unit as claimed.

As per claim 5, Lao et al. discloses in col. 10, lines 50-66, a crisscrossing of elements about a diagonal as claimed.

As per claims 6,9,12 and 16 since it is well known that LAPACK and BLAS are often required matrix transposition, and because Lao et al. teach a matrix transposition, it would have been an obvious application to apply the matrix transposition of Lao et al. in LAPACK and BLAS as claimed.

As per claim 8, Lao et al discloses in col. 16, lines 49-53, a checkerboard loading technique as claimed.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong D. Ngo whose telephone number is (571) 272-3731. The examiner can normally be reached on Tuesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chuong D Ngo  
Primary Examiner  
Art Unit 2193

10/27/2006